Solutions: Examining Distributions Checkpoint 1

The following 5 questions relate to the same histogram, shown below.

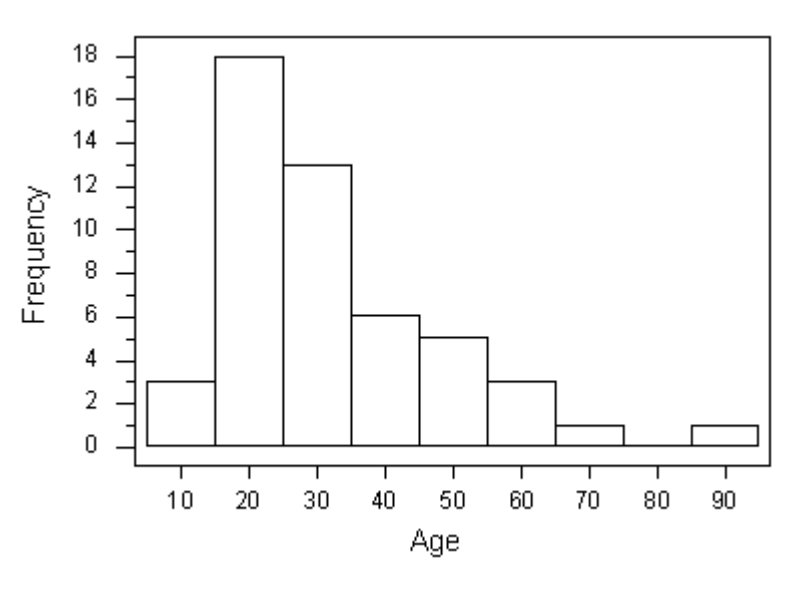
Question 1

Students will see one of the following two questions, chosen at random.

Option 1:

The histogram below displays the distribution of 50 ages at death due to trauma (accidents and homicides) that were observed in a certain hospital during a week.

Select one answer.
10 points



What percentage of deaths were individuals younger than 35?

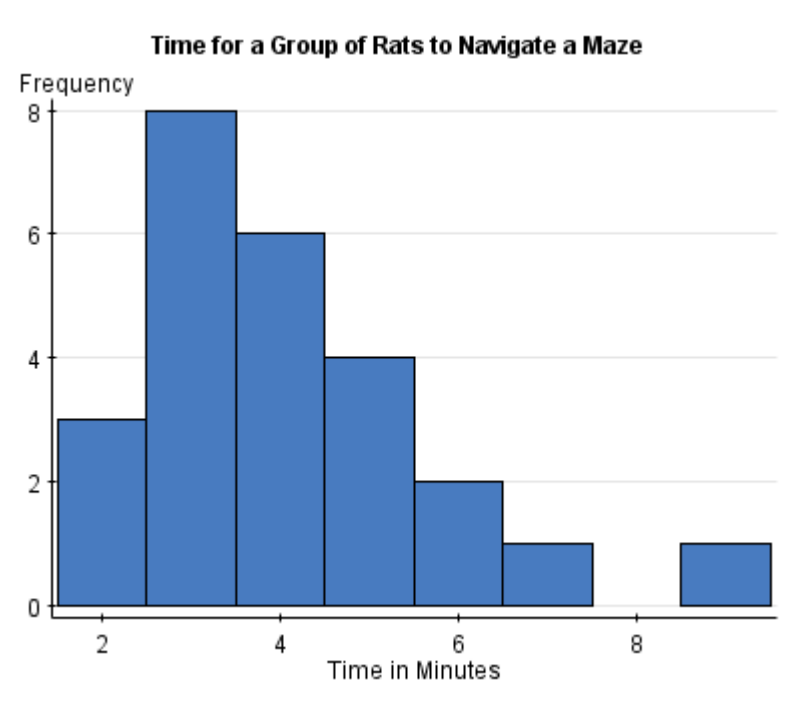
- (a) 34%
- (b) 60%
- (c) 68%
- (d) 70%
- (e) 80%

Correct answer: (c)

Option 2:

This histogram shows the times, in minutes, required for 25 rats in a animal behavior experiment to successfully navigate a maze.

Select one answer.
10 points



What percentage of the rats navigated the maze in less than 5.5 minutes?

- (a) 34%
- (b) 60%
- (c) 68%
- (d) 70%
- (e) 84%

Correct answer: (e)

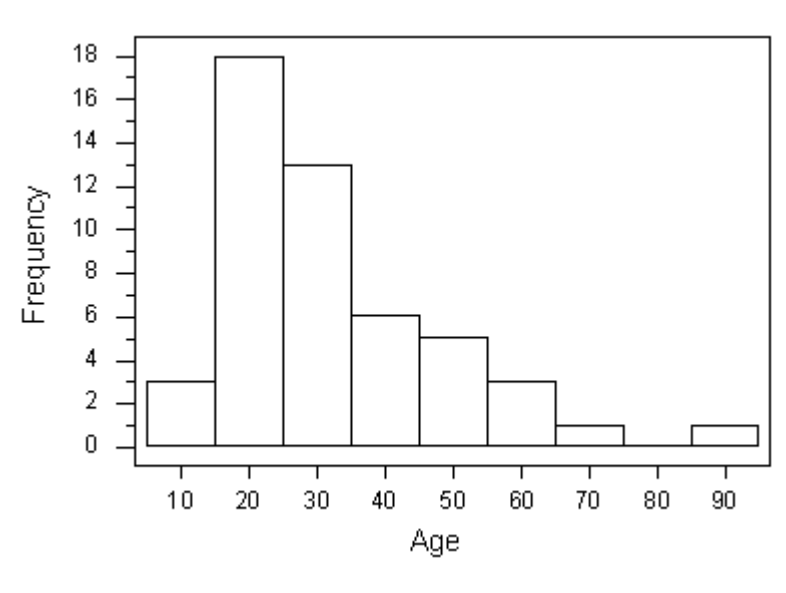
Question 2

Students will see one of the following two questions, chosen to correspond with the scenario they saw in question 1.

Option 1:

Here again is the histogram showing the distribution of 50 ages at death due to trauma (accidents and homicides) that were observed in a certain hospital during a week.

Select one answer.
10 points



Which of the following best describes the shape of the histogram?

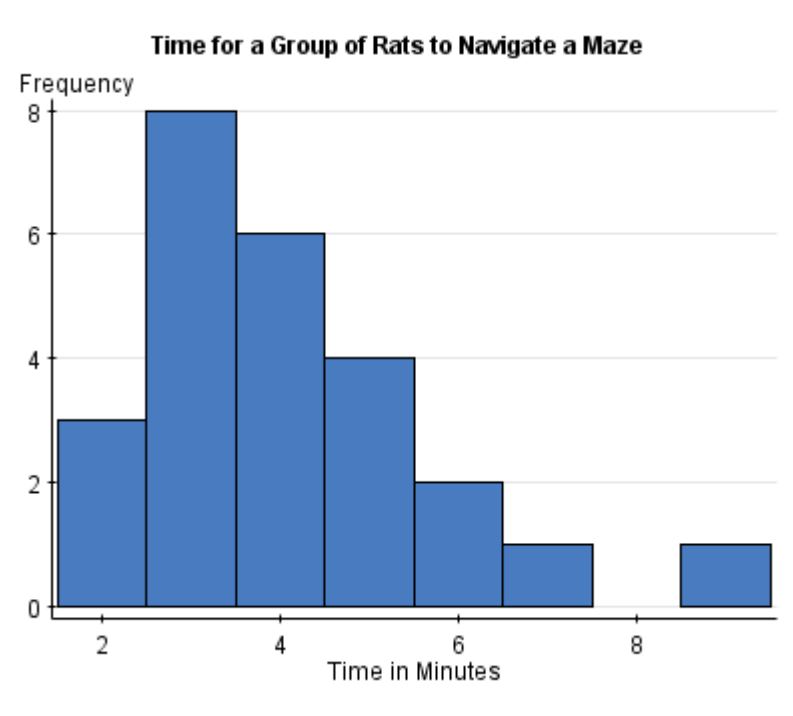
- (a) Symmetric
- (b) Left-skewed with no outliers
- (c) Right-skewed with no outliers
- (d) Left-skewed with a possible outlier
- (e) Right-skewed with a possible outlier

Correct answer: (e)

Option 2:

Here again is the histogram showing the times, in minutes, required for 25 rats in a animal behavior experiment to successfully navigate a maze.

Select one answer.
10 points



Which of the following best describes the shape of the histogram?

- (a) Symmetric
- (b) Left-skewed with no outliers
- (c) Right-skewed with no outliers
- (d) Left-skewed with a possible outlier
- (e) Right-skewed with a possible outlier

Correct answer: (e)

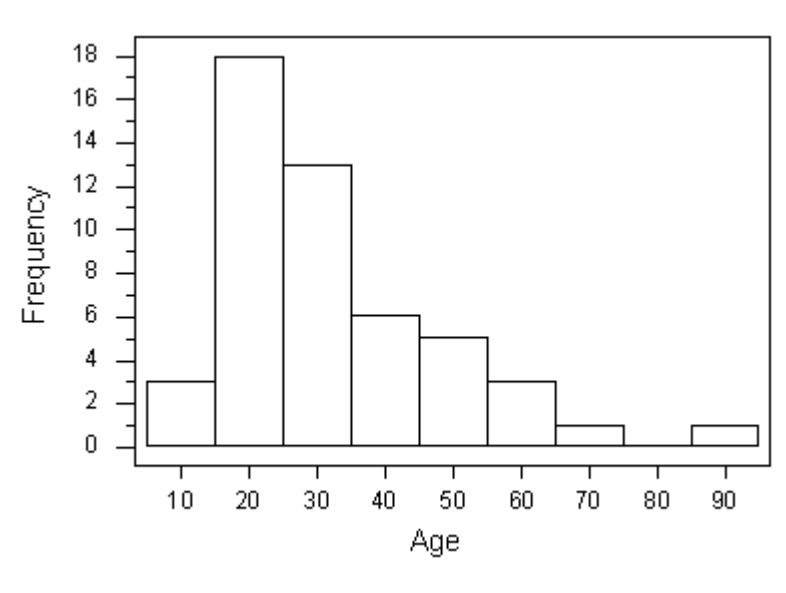
Question 3

Students will see one of the following two questions, chosen to correspond with the scenario they saw in question 1.

Option 1:

Here again is the histogram showing the distribution of 50 ages at death due to trauma (accidents and homicides) that were observed in a certain hospital during a week.

Select one answer.
10 points



For the data described by the above histogram,

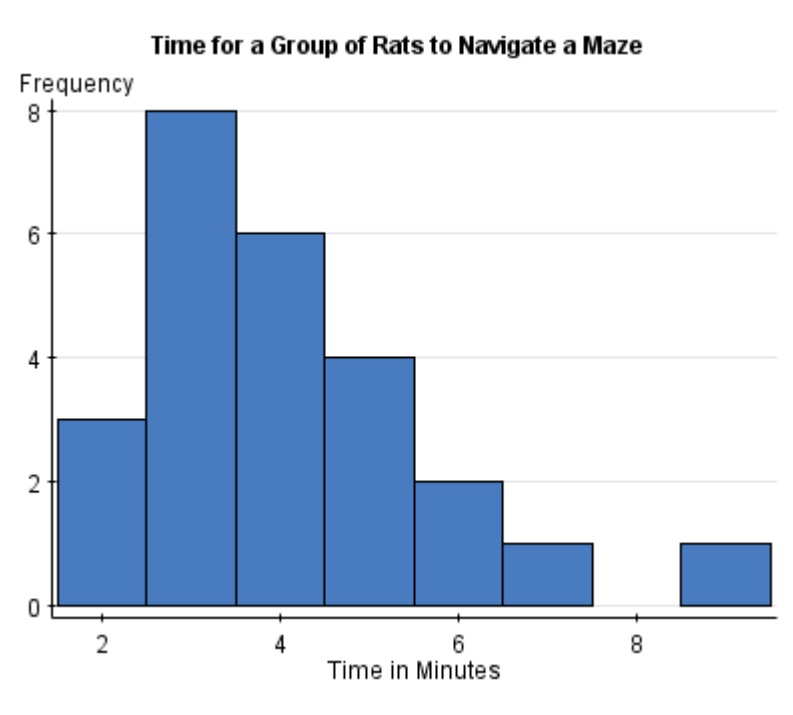
- (a) the median will be bigger than the mean.
- (b) the median will be smaller than the mean.
- (c) the median and the mean will be about the same.
- (d) the median and the range will be about the same.
- (e) both (b) and (d) are correct.

Correct answer: (b)

Option 2:

Here again is the histogram showing the times, in minutes, required for 25 rats in a animal behavior experiment to successfully navigate a maze.

Select one answer.
10 points



For the data described by the above histogram,

- (a) the median will be smaller than the mean.
- (b) the median will be larger than the mean.
- (c) the median and the mean will be about the same.
- (d) the median and the range will be about the same.
- (e) both (a) and (d) are correct.

Correct answer: (a)

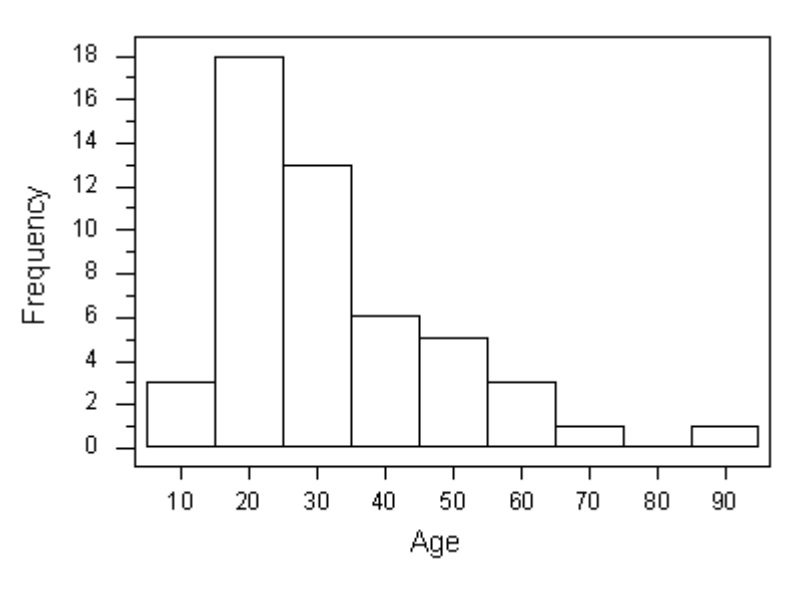
Question 4

Students will see one of the following two questions, chosen to correspond with the scenario they saw in question 1.

Option 1:

Here again is the histogram showing the distribution of 50 ages at death due to trauma (accidents and homicides) that occurred in a certain hospital during a week.

Select one answer.
10 points



A *possible* value of the median in this example is:

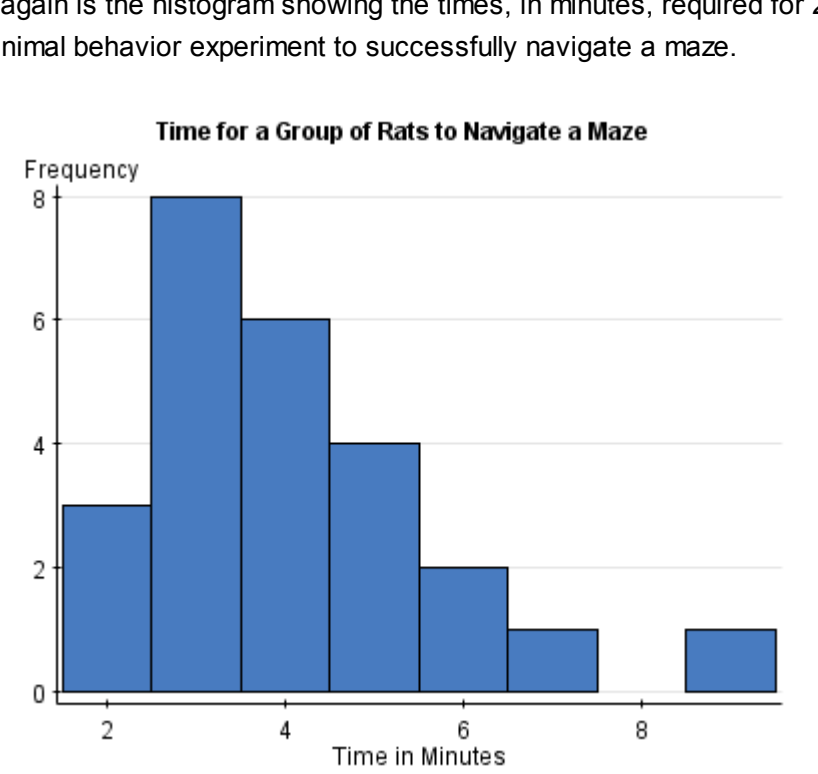
- (a) 23
- (b) 45
- (c) 50
- (d) 33
- (e) It is impossible to answer without seeing all of the data.

Correct answer: (d)

Option 2:

Here again is the histogram showing the times, in minutes, required for 25 rats in a animal behavior experiment to successfully navigate a maze.

Select one answer.
10 points



A **possible** value of the median in this example is:

- (a) 3.3
- (b) 3.9
- (c) 4.6
- (d) 5.5
- (e) It is impossible to answer without seeing all of the data.

Correct answer: (b)

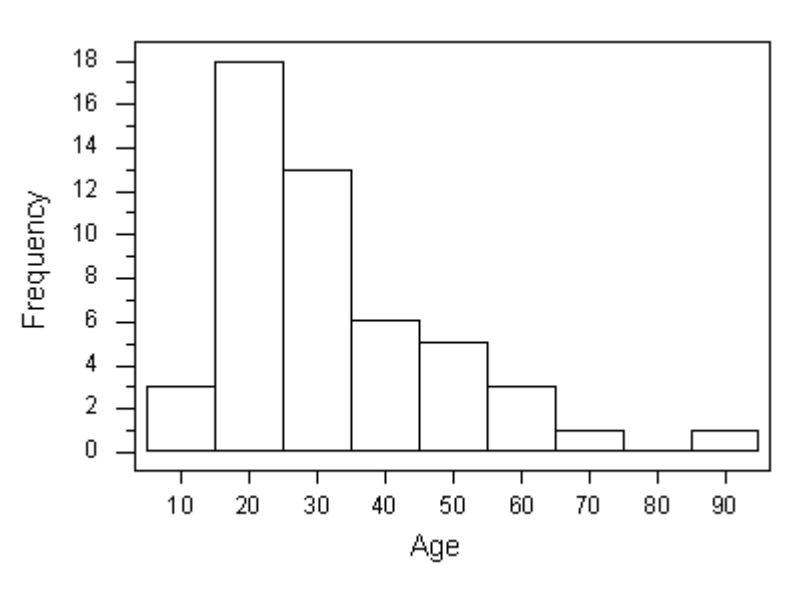
Question 5

Students will see one of the following two questions, chosen to correspond with the scenario they saw in question 1.

Option 1:

Here again is the histogram showing the distribution of 50 ages at death due to trauma (accidents and homicides) that were observed in a certain hospital during a week.

Select one answer.
10 points



Assume that the largest observation in this dataset is 90. If this observation were wrongly recorded as 900, then:

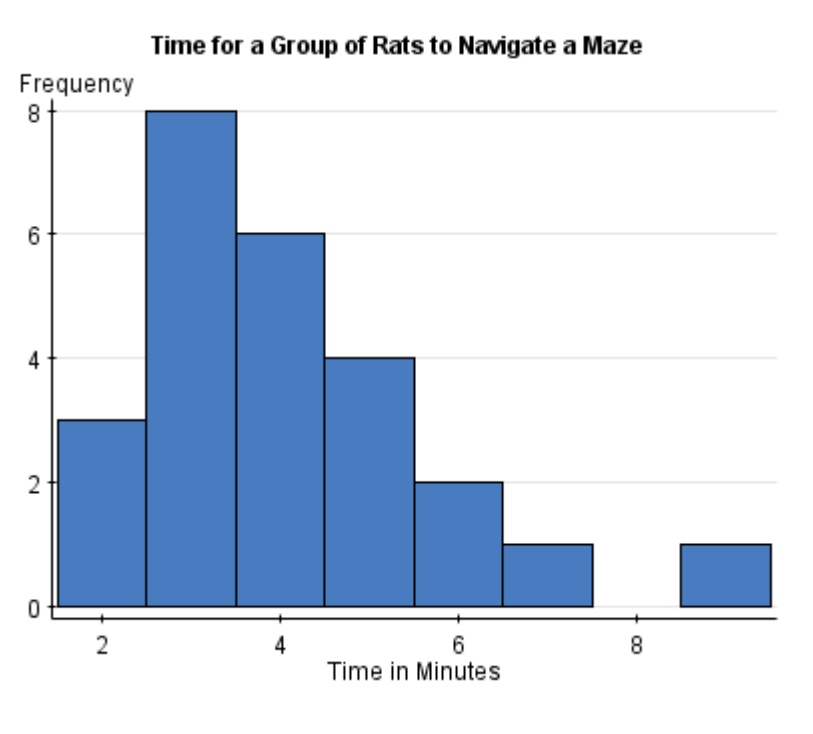
- (a) Both the mean and the median will not change.
- (b) Both the mean and the median will change.
- (c) The mean will stay the same, but the median will change.
- (d) The mean will decrease, but the median won't change.
- (e) The mean will increase, but the median won't change.

Correct answer: (e)

Option 2:

Here again is the histogram showing the times, in minutes, required for 25 rats in a animal behavior experiment to successfully navigate a maze.

Select one answer.
10 points



Assume that the largest observation in this dataset is 8.6 minutes. If this observation were wrongly recorded as 86, then:

- (a) Both the mean and the median will not change.
- (b) Both the mean and the median will change.
- (c) The mean will stay the same, but the median will change.
- (d) The mean will decrease, but the median won't change.
- (e) The mean will increase, but the median won't change.

Correct answer: (e)

Please answer the question below. Your response will not be graded, but will be available for your instructor to read.

Question 6

What determines which numerical measures of center and spread are appropriate for describing a given distribution of a quantitative variable? Which measures will you use in each case?

0 points

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Save Submit and finish